

Department of Genetics, University of Wisconsin
Madison 6, Wisconsin

June 27, 1951

Dr. D. Lewis,
John Innes Horticultural Institution,
Bayfordbury, Hertford, Herts.,
England.

Dear Dr. Lewis:

The 41st annual report of your institution was just received here, and I was especially interested to read the tantalizingly condensed summary of your experiences with mutations at the S locus. An explanation came to my mind for the "temporary" mutations which I hoped you might comment upon.

My Botany is none too sure, but if I am not too far off, the mature pollen grain in *Oe. organensis* contains two nuclei- one the tube nucleus, the other a generative nucleus which divides in the pollen tube or earlier to produce the two sperms. Is it not likely that the phenotype of the male gametophyte is controlled by the tube nucleus rather than the generative? If so, a mutation occurring subsequent to meiosis might produce a change enabling "the pollen grain carrying the mutated allele to pass the incompatibility sieve", although there would be no alteration detectable in the next generation. This would not account for the remarkable family referred to on p. 16, lines 8-10.

This notion would, however, also account simply for the surplus of clones of single mutants referred to in your paper on spontaneous mutation rates, since such clones would result either from mutations at the last meiotic or the first postmeiotic mitosis. Half these clones, however, would have to carry "temporary" mutations, whereas such mutations should not be characteristic of larger clusters presumably resulting from premeiotic mutations.

Yours sincerely,

Joshua Lederberg,
Associate Professor of
Genetics